**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 5**
**77 WEST JACKSON BOULEVARD**
**CHICAGO, ILLINOIS 60604**

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| **SUBJECT:** | CLEAN AIR ACT INSPECTION REPORT<br>Riverdale Plating and Heat Treating, LLC |
| **FROM:** | Linda H. Rosen, Environmental Engineer<br>AECAB (IL/IN) |
| **THRU:** | Nathan Frank, Section Supervisor<br>AECAB (IL/IN) |
| **TO:** | File |

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## BASIC INFORMATION

**Facility Name:** Riverdale Plating and Heat Treating, LLC

**Facility Location:** 680 West 134th Street, Riverdale, Illinois

**Date of Inspection:** 09/16/2022

**EPA Inspector(s):**
1. Linda H. Rosen, Environmental Engineer
2. Emma Leeds, Environmental Engineer

**Other Attendees:**
1. Camilo Galvez, Owner and Director of Maintenance, Riverdale Plating and Heat Treating, LLC (Riverdale Plating)
2. Jeff Zak, Scientific Controls, on phone during part of the opening conference

**Contact Email Address:** cgalvez@riverdalepht.com

**Purpose of Inspection:** Electroplating inspection

**Facility Type:** Heat treating and zinc chloride and zinc nickel plating

**Regulations Central to Inspection:** National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations, 40 C.F.R. Part 63, Subpart WWWWW (Plating and Polishing NESHAP).

**Arrival Time:** 9:25 a.m.
**Departure Time:** 12:00 p.m.

**Inspection Type:**
☒ Unannounced Inspection
☐ Announced Inspection

**OPENING CONFERENCE**

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☒ Provided Small Business Resource Information Sheet
☐ Small Business Resource Information Sheet not provided.
☒ Provided CBI warning to facility

The following information was obtained verbally from representatives of Riverdale Plating unless otherwise noted.

**Process Description:**
Riverdale Plating heat treats and plates small steel hardware parts of no more than 6-7 inches primarily for the automotive industry. The heat treatment process hardens the parts and eighty percent of incoming parts are heat treated. The facility operates three lines, each consisting of a natural gas-fired furnace operating at 1600-1620 º F, a quench using a special oil that does not ignite, a water wash, and tempering. After treatment, the parts are cooled in a room. On one of the lines, the parts are rinsed before entering the furnace.

The facility performs zinc chloride electroplating (90 percent) and zinc nickel electroplating (10 percent) on some of the parts. They operate one 3000-gallon zinc chloride electroplating tank and one 1400-gallon open zinc nickel electroplating tank. The facility refers to zinc chloride electroplating as the "zinc" plating process and to zinc nickel electroplating as the "nickel" electroplating process. Both plating processes use barrel plating as opposed to rack plating. The parts are placed in a barrel which is then lowered into the electroplating tank. The nickel tank runs intermittently and is a batch process with six separate barrels. The nickel electroplating process takes about an hour for each barrel. There are two rectifiers, one for each tank, each 10,000 amps. There may be another nickel tank listed in the permit but the facility does not use it.

After zinc chloride plating, about 2 percent of the parts are treated in a 300-gallon chromate bath that uses hexavalent chromium with no electroplating in order to prevent corrosion. The parts are then air dried with steam at a temperature of 180-190 º F for about 5 minutes. Before being treated with chromate, parts must be zinc chloride plated. After zinc nickel plating the parts do not go through the chromate process but are instead dip coated with a water-based coating.

**Staff Interview:** The facility operates 24 hours per day (3 shifts), 5 days per week for the electroplating process and 7 days a week for the heat treating process, and employs 55-60.

Annual production is measured by pounds (lb) of parts but they did not know what the annual production was off hand.

Jeff Zak of Scientific Controls handles the facility's permits, NESHAP reports and Annual Emission Reports. Jeff Zak said the facility is not subject to the Chromium Electroplating NESHAP because no electroplating occurs in the chromate tank but that it is subject to the Plating and Polishing NESHAP due to the chromate wash and the zinc nickel plating. Jeff Zak said that there are different options for compliance depending on the pH but that the facility only needs to implement best management practices at the zinc nickel electroplating tank and the chromium tank.

According to Camilo Galvez, the pH of the zinc chloride electroplating tank is 5-6. The zinc nickel electroplating tank is alkaline with a pH of 9-11. The facility monitors the pH.

During the inspection, Camilo Galvez stated that a wetting agent is used in the zinc chloride electroplating process and that no wetting agent is used in the zinc nickel electroplating process.

On Thursday, 9/22/2022, I electronically mailed (emailed) Camilo Galvez asking him to confirm that the zinc nickel tank does not use a wetting agent. I also asked whether the zinc nickel electroplating tank is ever closed and whether the operation is batch or continuous. On Monday, 9/26/2022, Camilo Galvez emailed stating that the zinc nickel tank uses a wetting agent. He also stated that the tank is closed only on the weekends when not in use and that the process is a "continuous line." On Monday, 9/26/2022, Jeff Zak responded by email stating that the process is a batch operation in that it is not a continuous reel-to-reel plating line. He also stated in a separate email that day that he did not know whether the wetting agent used on the zinc nickel electroplating is a separately added product or if it is inherent to the plating chemistry. On 9/26/2022, I emailed both Camilo Galvez and Jeff Zak and asked them to confirm again that the zinc nickel plating process uses a wetting agent since this was the opposite of what was stated during the inspection. On 9/27/2022, Jeff Zak responded by stating that wetting agents are used for both the zinc chloride and zinc nickel plating processes. I responded in an 9/27/2022 email that EPA would be sending them an email requesting documents in relation to the inspection.

## TOUR INFORMATION

**EPA Tour of the Facility:** Yes

**Data Collected and Observations:**
We started at the heat treatment process, which consists of Lines 1, 3, and 4. We observed Line 4, which was operating. The facility never shuts the furnaces down. They are operated 24/7 and 80 percent of the products are heat treated. The process takes about 3.5 hours. The water bath that occurs after quenching can contain some caustic materials. The oil is recovered from the wastewater and used again.

We observed water wash tanks used in nickel plating and the hoods that capture the steam from this process (photo 1). We observed the zinc nickel electroplating tank that uses barrel plating

(photo 2). It was not electroplating at the time of the inspection but was mixing to perform an analysis on the solution. There was no reading at the pH meter due to the tank not electroplating.

We observed the chromium wash tank process. The part was first dipped into an acid solution and then the chromate wash (photo 3). We observed the dyeing operation where red, green, blue, or black dyes are used. We observed the dip coating process that uses one coating that is applied after zinc nickel plating (photo 4).

Finally, we observed the zinc chloride line. We saw the rectifier and the tote of the wetting agent (photo 5). The facility claimed this photo as CBI.

There were two chillers on-site. They were enclosed units each using 134A. They are used to chill water and solution for the tanks. The facility stated that they have never had to replace the refrigerant.

**Photos and/or Videos:** were taken during the inspection.

**Field Measurements:** were not taken during this inspection.

## CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

**Requested documents:**

On October 6, 2022, I sent an email to Camilo Galvez and Jeff Zak, requesting that Riverside Plating submit the following documents via a secure web link to the EPA:

- Current air permit;
- Safety Data Sheet (SDS) and technical data sheet for quench oil used in heat treating;
- Notification of Compliance for Plating and Polishing NESHAP;
- Annual compliance certification for the Plating and Polishing NESHAP for the last two years (2022 submittal covering 2021 and 2021 submittal covering 2020);
- Two years of pH monitoring on the zinc nickel electroplating tank (October 1, 2020 to September 30, 2022);
- List of all chemical additions into the zinc nickel tank in the last 2 years (from October 1, 2020 to September 30, 2022). Include all their SDS and technical data sheets and the date and amount added during each addition;
- Explain whether any wetting agent/fume suppressant (WAFS) used in zinc nickel plating is part of the bath chemistry or if it is a separately added component, and the purpose of any wetting agent used (i.e., enhancing plating performance, reducing fumes from the tank, etc); and
- Manufacturer's recommendations for the addition of any WAFS to the zinc nickel plating tank.

**DIGITAL SIGNATURES**

Report Author: Linda H. Rosen

Section Supervisor: Frank, Nathan Digitally signed by Frank, Nathan Date: 2022.10.14 14:48:41 -05'00'

## APPENDICES AND ATTACHMENTS

1. Digital Media Appendix

## APPENDIX A: DIGITAL IMAGE LOG

| 1. **Inspector Name:** Emma Leeds | 2. **Archival Record Location:** Region 5 Electronic Records Center |
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| Image Number | File Name | Date and Time (incl. Time zone and DST) | Description of Image |
|---|---|---|---|
| 1 | P9160097.JPG | 2022:09:16 11:20:34 | Hoods to collect steam off of zinc nickel wash baths |
| 2 | P9160098.JPG | 2022:09:16 11:23:26 | Zinc nickel six-barrel electroplating process |
| 3 | P9160099.JPG | 2022:09:16 11:28:52 | Chromate tank |
| 4 | P9160100.JPG | 2022:09:16 11:33:20 | Dip tank coating |
| 5 | P9160101.JPG | 2022:09:16 11:38:27 | Wetting agent used for zinc chloride. Facility claims this image as CBI. |